

## CLAIMS:

1. Method of driving a high-pressure gas discharge lamp (11) during its steady-state operation, wherein a steady-state current signal (G1) is sent through the lamp (11) for maintaining an arc in the lamp (11), comprising the step of comparing the lamp voltage response (Vlamp) to a current step in said current signal with reference parameters; and in response to said comparison at least one of the following steps: stopping the power supply to the lamp (11), generating a signal indicating the end of life status of the lamp (11), changing the steady-state current through the lamp (11), changing the steady-state waveform of the current signal through the lamp (11), and generating a signal indicating the lamp type, characterized in that said current step is obtained by sending a current pulse (G2) which is superimposed on said steady-state current signal (G1) through the lamp (11).
2. Method according to claim 1, wherein the steady-state current signal (G1) comprises an alternating current component.
3. Method according to claim 2, wherein the duration of said pulse (G2) is shorter than the duration of the half period of the AC current component or the half period of the AC current signal of the steady-state current signal (G1).
4. Method according to claim 1, 2 or 3, wherein the superimposed pulse (G2) is a negative pulse.
5. Method according to claim 2, wherein the duration of said pulse (G2) is a multiple of the duration of the period of the AC current component of the steady-state power signal (G1), and wherein preferably the pulse (G2) is comprised of a temporarily intensified amplitude of said AC current component of the steady-state power signal (G1).
6. Method according to any of the previous claims 1 to 4, wherein the step of comparing the voltage response (Vlamp) comprises measuring the decay or rise time ( $\tau$ ) of the voltage and comparing it with a reference decay or rise time.

7. Method according to any of the previous claims 1 to 4, wherein the step of comparing the voltage response (V<sub>lamp</sub>) comprises analyzing the shape of the response signal and comparing it with reference values.

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8. Method according to any of the previous claims 1 to 4, wherein the step of changing the steady-state waveform (G1) comprises the step of superimposing a recurring current pulse (G2) on said steady-state waveform.

10 9. Ballast (10) for driving a high-pressure gas discharge lamp (11), comprising power supply means for sending a steady-state current signal (G1) through the lamp (11) for maintaining an arc in the lamp (11), response comparing means for comparing the lamp voltage response (V<sub>lamp</sub>) to a current step in said current signal with reference parameters; and responding means for stopping the power supply to the lamp (11), generating a signal  
15 indicating the end-of-life status of the lamp (11), generating a signal indicating the lamp type, changing the steady-state current through the lamp (11), and/or changing the steady-state waveform of the current signal through the lamp (11) in response to said comparison, characterized in that said ballast (10) further comprises pulse means for sending a current pulse (G2) which is superimposed on said steady-state current signal (G1) through the lamp  
20 (11) for obtaining said current step.